National Institute of Environmental Health Sciences

Smartbay, Ireland: Design and planning for a cabled ocean observatory off the west coast of Ireland

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Abstract:

The SmartBay, Ireland, concept arose from contacts with representatives of other observatories and from ongoing strategic collaboration between Ireland and Newfoundland. It has been conceived as a catalytic infrastructure project to provide a Test and Demonstration platform for emerging technologies for marine monitoring. The backbone of this platform will be a fibre optic and power cable network linking seabed observation stations for real-time oceanographic, marine monitoring and other instruments. SmartBay features as a key initiative in SeaChange, the Irish Marine Research Programme, 2007-2013, and has been adopted as a specific measure in the Government's Strategy for Science, Technology and Innovation. SmartBay is intended to meet two distinct but complementary objectives: 1. Provide a high-capability platform for test and demonstration of novel sensors and sensor networks, including those emerging from ongoing research projects. In this respect SmartBay is a key component of the strategy to develop and support an enhanced industry capability in the design and manufacture of innovative instrumentation technologies. 2. To demonstrate the benefits that real-time observation networks can provide to a wide range of end-users. In this context, the intention is that it will be possible for SmartBay to monitor natural events such as storms, plankton blooms, fish behaviour, etc. as well as shipping and other vessel movements. The medium term goal is to provide a predictive and early warning capacity for Bay users. It is envisaged that the system will be interactive and that scientists will communicate with the instruments as events unfold. SmartBay will inform and enhance a range of activities of strategic significance to a wide variety of agencies and stakeholders in marine sector industries. These include: Utilisation of seabed survey technologies and the digital environmental datasets generated, particularly the Irish National Seabed Survey; Provision of a test platform for instrument packages before their operational deployment.; Monitoring requirements associated with legislative and management activities (e.g. European Union Water Framework Directive and Habitats Directive, Climate Change Monitoring and Coastal Zone Management); Marine tourism and leisure development through, for example, monitoring of local sea state, water quality and fish and cetacean behaviour in real time; Fish stock management through observation of spawning, feeding and larval behaviour; Improved coastal modelling for temperature, salinity and hydrographic conditions; Support for the development of excellence in research areas such as oceanographic modelling, climate change etc. Galway Bay, because of its unique combination of environmental, industrial and social features, has been selected as the location for SmartBay. The Marine Institute itself is headquartered on the shores of Galway Bay and will facilitate logistical and scientific support for the installation and ongoing operation of SmartBay. SmartBay is currently at the design and planning stage. It is intended initiate the permitting process before

the end of 2007 and to commence instalment of the fibre optic and power cable during the summer of 2009. The SmartBay website will commence later in 2007 and will feature real time data from a variety of oceanographic and weather buoys already located in or near Galway Bay.

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Resource Description

Early Warning System:

resource focus on systems used to warn populations of high temperatures, extreme weather, or other elements of climate change to prevent harm to health

A focus of content

Exposure :

weather or climate related pathway by which climate change affects health

Ecosystem Changes, Extreme Weather Event, Food/Water Quality, Food/Water Security

Extreme Weather Event: Hurricanes/Cyclones

Food/Water Quality: Biotoxin/Algal Bloom, Chemical, Other Water Quality Issue

Water Quality (other): Water temperature; Salinity

Food/Water Security: Fisheries, Other Marine Productivity

Geographic Feature:

resource focuses on specific type of geography

Ocean/Coastal

Geographic Location:

resource focuses on specific location

Non-United States

Non-United States: Europe

European Region/Country: European Country

Other European Country : Ireland

Health Impact:

specification of health effect or disease related to climate change exposure

Health Outcome Unspecified

Model/Methodology:

type of model used or methodology development is a focus of resource

Computing System, Methodology

Resource Type:

format or standard characteristic of resource

Research Article

Timescale:

time period studied

Time Scale Unspecified